



MECHANICAL DATA SHEET

SHELL AND TUBE HEAT EXCHANGER

Plant Item No.
24590-PTF-MB-TLP-RBLR-00001

Data Sheet No.
24590-PTF-MED-TLP-P0004

R10274732

Project:	RPP-WTP	Description:	Treated LAW Evaporator Reboiler
Project No:	24590	P&ID:	24590-PTF-M6-TLP-P0003
Site:	Hanford	Process Data Sht:	24590-PTF-MVC-TLP-00001
Process flow diagram:	24590-PTF-M5-V17T-P0005	Manufacturer Name	Framatome ANP / Northwest Copper Works, Inc.

General Data

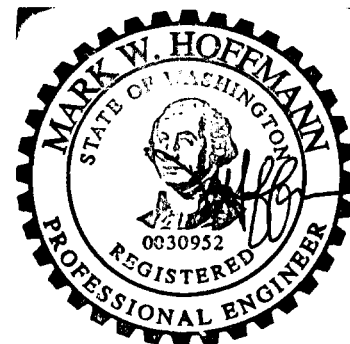
Quality Level	CM	TEMA (Class/Type)	B	*
Seismic Category	SC-III	Flow Type (Counter current, etc)	*	
Design Code	ASME VIII, Div 1	Heat Exchanger Duty Btu/hr	18,350,000**	
Code Stamp	Yes	Heat Exchanger Area ft ²	2582**	
NB Registration	Yes	ΔT (LMTD/Corrected LMTD) °F	*	*

Thermal/Hydraulic Data

	Shell Side	Tube Side
Fluid Name	Steam	Waste Feed Recirculation
Fluid Quantities: Total lbm/hr	17,012**	*
Condensable Vapor (In/Out)	*	*
Liquid	*	*
Noncondensable	*	*
Temperature (In/Out) °F	*	*
Specific Gravity	*	1.57
Viscosity cP	*	30
Molecular Weight, Vapor	*	*
Molecular Weight, Noncondensable	*	*
Specific Heat Btu/lbm-°F	*	*
Thermal Conductivity Btu/hr-ft-°F	*	*
Latent Heat Btu/lbm @ °F	*	*
Inlet pressure psia	7.88**	*
Tube side Velocity ft/s	*	*
Pressure Drop (Actual) psi	*	*
Fouling Resistance (Min) hr-ft ² -°F/Btu	0.0015**	0.007 **

Note: Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.

ISSUED BY
RPP-WTP PDC
JC 3/25/04
INT DATE



3/24/04

EXPIRES 12/10/04

This Bound Document Contains a Total of 2 Pages.

0	Issued for Permitting Use	E. Le <i>EL</i>	D. Reinemann <i>DR</i>	J. Julyk <i>JJ</i>	3/24/04
REV	REASON FOR REVISION	PREPARED	CHECKED	APPROVED	DATE



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Mechanical Data

		Shell Side		Tube Side	
Design Pressure (Max/Min)	psig	50	Full vacuum	50	Full vacuum
Design Temperature (Max/Min)	°F	311	49	311	49
Corrosion Allowance	inch	NIA		0.04	
Erosion Allowance	inch	NIA		NIA	
Shell OD/ID	inch	72**		Overall Dimensions (H x W x L) inch	72x72x180**
Total No. of Tubes		822**		Tube OD inch	1.5 ** inch

Material Data

Shell	SA 240 304L SS	Shell Cover	SA 240 304L SS
Channel/Bonnet	Alloy G-30	Channel Cover	Alloy G-30
Tube	Alloy G-30 (seamless)	Floating Head Cover	NIA
Stationary Tube Sheet	Alloy G-30	Floating Tube Sheet	NIA
Shell Side Gaskets	NIA	Tube Side Gaskets	NIA
Partition Seals	NIA	Baffles/Supports	SA 240 304
Insulation	NIA	Forgings (Shell side)	SA 182 F304 (max. carbon 0.030%)
Bolting	NIA	Forgings (Channel)	Alloy G-30

Construction Data (To be determined by the supplier when not specified by the buyer)

Cross Baffle Type	*	% Baffle Cut (Dia.)	*	Spacing (c/c) inch	*
Bypass Seal Arrangement	*	Longitudinal Seal Type	*	Expansion Joint Type	*
Inlet Nozzle ρV^2	*	Bundle Entrance ρV^2	*	Bundle Exit ρV^2	*
Tube Support Type	*	U-bend Support Type	*	Weight of Bundle lbf	*
Operating Weight lbf	*	Full of Water lbf	*	Weight of Shell lbf	*

Notes

* To be determined by Seller

** To be verified by Seller

Notes: (1) All welds are continuous to avoid crevices, weld surface finish is descaled as laid.

(2) All welded construction on both tube and shell sides

(3) Tubes welded to the tubesheets with full strength welds.